

**REMARKS**

Claims 1-5 are pending in the Office Action. Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bigo et al, “5.12 Tbit/s (128x40 Gbit/s WDM) transmission over 3x1000 km of TeraLight Fibre,” (hereinafter referred to as “Bigo”) in view of newly cited Yu (U.S. Patent No. 5,778,113). Applicant respectfully submits that claims 1 and 2 would not have been rendered obvious in view of the combined references.

Independent claim 1 is directed to “[a] method for modulating a non-return to zero (NRZ) signal transmitted to a receiver utilizing alternating left side and right side filtering for adjacent channels having alternating channel spacing.” The method of claim 1 requires:

modulating channels which are to be subjected to the *right* side filtering  
using a modulator with a *positive* chirp; and

modulating channels which are to be subjected to the *left* side filtering  
using a modulator with a *negative* chirp.

Thus, claim 1 requires, *inter alia*, that channels subjected to right side filtering are modulated with a positive chirp, and that channels subjected to left side filtering are modulated with a negative chirp.

With regard to claim 1, the Examiner asserts that Bigo discloses all of the features of the claimed invention except for “the modulator provide[s] positive and negative chirp.” However, the Examiner cites column 3, lines 35-50 of Yu as allegedly disclosing “that it is well known to provide positive or negative chirp using [a] modulator.” Further, the Examiner asserts that “it

would have been obvious to ... to provide chirp to the system of Bigo et al by adjusting the drive signal of the modulator as taught by Yu ... in order to reduce o[r] eliminate distortion.”

Applicant respectfully disagrees.

Although Bigo discloses modulating channels using Mach-Zehnder modulators, the cited reference does not teach or suggest modulating channels which are to be subjected to right side filtering using a modulator with a positive chirp and modulating channels which are to be subjected to left side filtering using a modulator with a negative chirp. That is, although a Mach-Zehnder modulator can be utilized to provide a non-zero transient chirp, which can be positive or negative, by applying a modulated control signal to one of the electrodes and a fixed bias voltage to the other electrode, nowhere does Bigo disclose modulating with a positive chirp for the right side band and modulating with a negative chirp for the left side band.

Further, Applicant submits that the disclosure in Yu does not make up the deficiencies of Bigo. The cited portion of Yu only discloses a multi-quantum-well (MQW) Mach-Zehnder (MZ) optical modulator which can generate either positive or negative frequency chirp. That is, Yu is merely directed to the construction of a configurable chirp MZ modulator, not to any particular application of such a modulator. Nowhere does Yu disclose modulating channels which are to be subjected to right side filtering and channels which are to be subjected to left side filtering using different chirps (i.e., positive or negative). Thus, similar to Bigo, Yu neither teaches nor suggests modulating channels which are to be subjected to right side filtering and channels which are to be subjected to left side filtering using different chirps (i.e., modulating channels which are to be subjected to right side filtering using a modulator with a positive chirp

and modulating channels which are to be subjected to left side filtering using a modulator with a negative chirp), as claim 1 requires.

Further, one of ordinary skill in the art would have been motivated to modify Bigo based on the teachings of Yu to modulate channels which are to be subjected to right side filtering using a modulator with a positive chirp and modulate channels which are to be subjected to left side filtering using a modulator with a negative chirp. Since the Bigo and Yu patents commonly lack various elements recited in independent claim 1, no possible combination of the applied references would render the invention of claim 1 obvious. Moreover, simply disclosing that modulator can selectively generate either positive or negative frequency chirp does not provide the requisite motivation to modulating channels which are to be subjected to right side filtering and channels which are to be subjected to left side filtering using different chirps (i.e., positive or negative).

Further, the Examiner's assertion that "it would have been obvious to ... to provide chirp to the system of Bigo" does not address the specific limitations of claim 1, i.e., channels subjected to right side filtering are modulated with a positive chirp, and channels subjected to left side filtering are modulated with a negative chirp. It is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This burden can only be satisfied by an objective teaching in the prior art or by cogent reasoning that the knowledge is available to one of ordinary skill in the art. See *In re Lahu*, (747 F.2d 703, 223 U.S.P.Q. 1257 (Fed. Cir. 1984)).

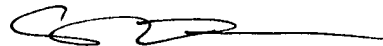
In short, those of ordinary skill in the art would not have been motivated to produce the claimed invention based on the proposed combination of references. Since the Bigo and Yu patents commonly lack various elements recited in independent claim 1, no possible combination of the applied references would render the invention of claim 1 obvious.

Accordingly, Applicant submits that independent claim 1, as well as dependent claim 2, should be allowable because the cited references, alone or in combination, do not teach or suggest all of the features of the claims, and one of ordinary skill in the art would not have been motivated to combine and modify the cited references to produce the claimed invention.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: March 2, 2006